

## NDL7553P Series

InGaAsP STRAINED MQW DC-PBH PULSED LASER DIODE MODULE  
1550nm OTDR APPLICATION

## DESCRIPTION

NDL7553P Series is a 1550nm newly developed Strained Multiple Quantum Well (st-MQW) structure pulsed laser diode coaxial module with singlemode fiber. It is designed for light source of optical measurement equipment (OTDR).

## FEATURES

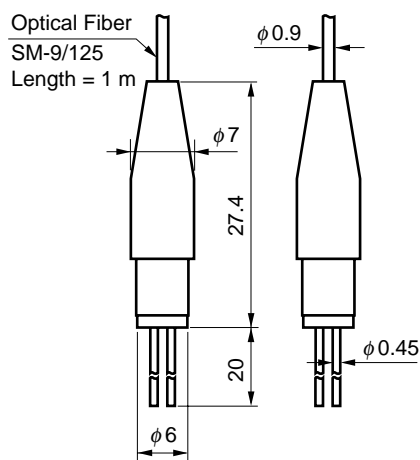
- High output power  $P_f = 145 \text{ mW} @ I_{FP} = 1000 \text{ mA}^{*1}$
- Long wavelength  $\lambda_c = 1550 \text{ nm}$
- Coaxial module without thermoelectric cooler.
- Singlemode fiber pigtail

\*1 Pulse Conditions: Pulse width (PW) = 10  $\mu\text{s}$ , Duty = 1 %

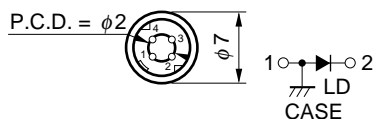
## PACKAGE DIMENSIONS

in millimeters

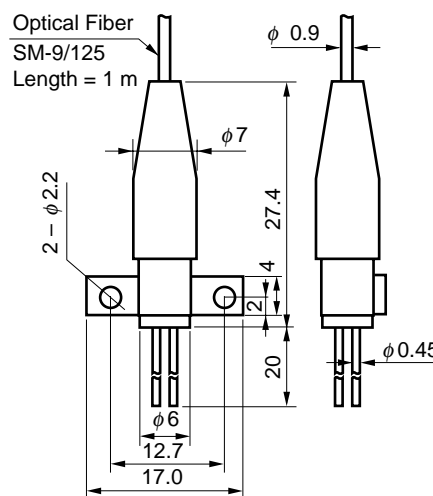
## NDL7553P



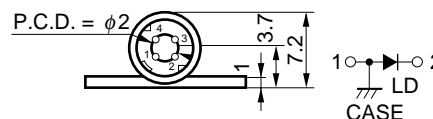
## PIN CONNECTIONS



## NDL7553P1



## PIN CONNECTIONS



The information in this document is subject to change without notice.

## ORDERING INFORMATION

Part Number	Available Connector	Flange Type
NDL7553P	Without Connector	no flange
NDL7553PC	With FC-PC Connector	
NDL7553PD	With SC-PC Connector	
NDL7553P1	Without Connector	flat mount flange
NDL7553P1C	With FC-PC Connector	
NDL7553P1D	With SC-PC Connector	

## ABSOLUTE MAXIMUM RATINGS (T<sub>c</sub> = 25 °C)

Parameter	Symbol	Ratings	Unit
Pulsed Forward Current <sup>*1</sup>	I <sub>FP</sub>	1.2	A
Reverse Voltage	V <sub>R</sub>	2.0	V
Operating Case Temperature	T <sub>c</sub>	-20 to +60	°C
Storage Temperature	T <sub>stg</sub>	-40 to +85	°C
Lead Soldering Temperature (10 sec)	T <sub>slid</sub>	260	°C

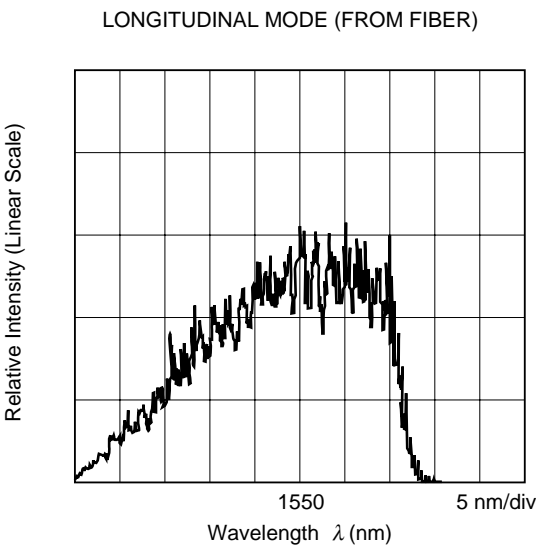
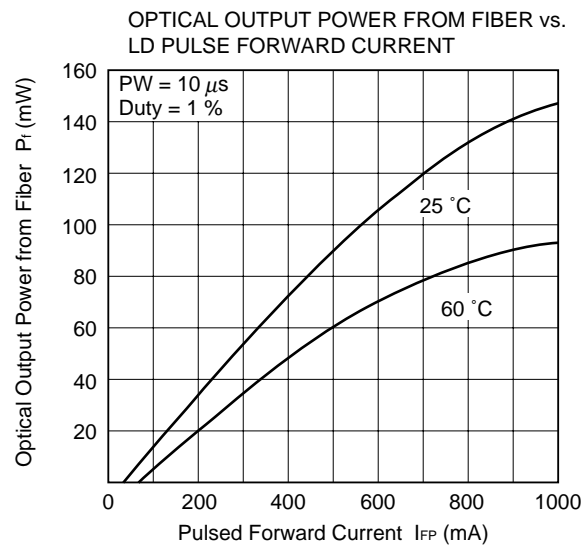
\*1 Pulse Condition: Pulse Width (PW) = 10 μs, Duty = 1 %

## ELECTRO-OPTICAL CHARACTERISTICS (T<sub>c</sub> = 25 °C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Forward Voltage	V <sub>FP</sub>	I <sub>FP</sub> = 1000 mA, PW = 10 μs, Duty = 1 %		2.5	4.0	V
Threshold Current	I <sub>th</sub>			45	75	mA
Optical Output Power from Fiber	P <sub>f</sub>	I <sub>FP</sub> = 1000 mA, PW = 10 μs, Duty = 1 %	95	145		mW
RMS Center Wavelength	λ <sub>c</sub>	I <sub>FP</sub> = 1000 mA, PW = 10 μs, Duty = 1 %	1530	1550	1570	nm
RMS Spectral Width	σ	I <sub>FP</sub> = 1000 mA, PW = 10 μs, Duty = 1 %		7.5	10.0	nm
Rise Time	t <sub>r</sub>	10 - 90 %			2.0	ns
Fall Time	t <sub>f</sub>	90 - 10 %			2.0	ns

## ELECTRO-OPTICAL CHARACTERISTICS (T<sub>c</sub> = 0 to +60°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Threshold Current	I <sub>th</sub>				100	mA
Optical Output Power from Fiber	P <sub>f</sub>	I <sub>FP</sub> = 1000 mA, PW = 10 μs, Duty = 1 %	60			mW
RMS Center Wavelength	λ <sub>c</sub>	I <sub>FP</sub> = 1000 mA, PW = 10 μs, Duty = 1 %	1520		1585	nm
Temperature Dependency of Center Wavelength	Δλ/ΔT			0.35		nm/°C
RMS Spectral Width	σ	I <sub>FP</sub> = 1000 mA, PW = 10 μs, Duty = 1 %			10	nm



LASER DIODE FAMILY FOR OTDR APPLICATION

Features Package	1.31 $\mu\text{m}$		1.55 $\mu\text{m}$		$I_{FP}^{*1}$ (mA)	Remarks
	Part Number	P (mW) MIN./TYP.	Part Number	P (mW) MIN./TYP.		
$\phi 5.6$ CAN	NDL7103	290/320	NDL7153	220/240	1000	
	NDL7113	160/175	NDL7163	100/120	400	
4 pin Coaxial Module with SMF	NDL7503P/P1	110/180	NDL7553P/P1	95/145	1000	P : no flange P1 : with flange
	NDL7513P/P1	70/110	NDL7563P/P1	60/80	400	
	NDL7514P/P1	25/50	NDL7564P/P1	20/40	400	
	NDL7515P/P1	20/30	NDL7565P/P1	8/11	400	
14 pin DIP Module with SMF	NDL7502P	125/190	NDL7552P	100/125	1000	with TEC and Thermistor
	NDL7512P	90/110	NDL7562P	70/80	400	
	NDL7510P	40/55	NDL7560P	20/30	400	

\*1 Pulse conditions: pulse width = 10  $\mu\text{s}$ , duty = 1 % (modules)  
pulse width = 1  $\mu\text{s}$ , duty = 1 % ( $\phi 5.6$  can)

**REFERENCE**

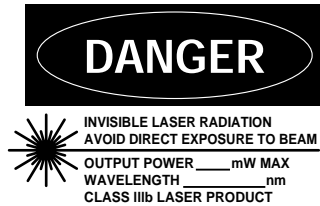
Document Name	Document No.
NEC semiconductor device reliability/quality control system	LEI-1201
Quality grades on NEC semiconductor devices	C11531E
Semiconductor device mounting technology manual	C10535E
Guide to quality assurance for semiconductor devices	MEI-1202
Semiconductor selection guide	X10679E

[MEMO]

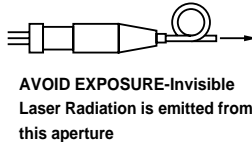
[MEMO]

## CAUTION

Within this module there exists GaAs (Gallium Arsenide) material which is a harmful substance if ingested. Please do not under any circumstances break the hermetic seal.



### SEMICONDUCTOR LASER



NEC Corporation  
NEC Building, 7-1, Shiba 5-chome,  
Minato-ku, Tokyo 108-01, Japan

Type number: \_\_\_\_\_

Manufactured: \_\_\_\_\_

Serial Number: \_\_\_\_\_

This product conforms to FDA  
regulations as applicable  
to standards 21 CFR Chapter 1.  
Subchapter J.

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NEC devices are classified into the following three quality grades:

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Standard: Computers, office equipment, communications equipment, test and measurement equipment, audio and visual equipment, home electronic appliances, machine tools, personal electronic equipment and industrial robots

Special: Transportation equipment (automobiles, trains, ships, etc.), traffic control systems, anti-disaster systems, anti-crime systems, safety equipment and medical equipment (not specifically designed for life support)

Specific: Aircrafts, aerospace equipment, submersible repeaters, nuclear reactor control systems, life support systems or medical equipment for life support, etc.

The quality grade of NEC devices is "Standard" unless otherwise specified in NEC's Data Sheets or Data Books. If customers intend to use NEC devices for applications other than those specified for Standard quality grade, they should contact an NEC sales representative in advance.

Anti-radioactive design is not implemented in this product.